25 July 2001 1100

"draft" Agenda

Unsteady Aerodynamics and Hypersonics Program Review

5-6 September 2001

Wednesday 5 September 2001
Uniform of the day: Blue shirt, tie, Presenters: Service Dress optional. Civilian: Business Attire.

Hyatt Regency Hotel
1800 Presidents Street
Reston, VA 20190
703-709-1234

0800-0900 **Registration and Continental Breakfast**
Main Lobby

0900-0915 **Welcome and Introduction**
Welcomed by: Dr. Steven Walker, Program Manager, AFOSR, 703-696-6962

0915-0930 **Unsteady Aerodynamics and Hypersonics Program Overview**
Briefed by: Dr. Walker

High Speed Boundary Layer Transition and Control

0930-0945 **Experimental Aeromechanics**
Briefed by: R. Kimmel, AFRL/VA 937-255-2193

0945-1015 **Mechanisms of Hypersonic Boundary Layer Transition on a Generic Scramjet Forebody**
Briefed by: S. Schneider, Purdue University, and H. Reed, Arizona State University.

1015-1030 **An Experimental Study of the Receptivity of a Compressible, Laminar Boundary Layer and the Effects on Stability and Receptivity of 2D and 3D Pressure Gradients**
Briefed by: G. Brown, Princeton University

1030-1100 **Break**

1100-1115 **Controlled Experiments on Instabilities and Transition to Turbulence on Elliptic Cones at Hyoersonic Mack Numbers**
Briefed by: T. Corke, University of Notre Dame

1115-1130 **Experimental Study of Nonlinear Behavior in Hypersonic Laminar Boundary Layers**
Briefed by: N.D. Chokani, North Carolina State University

1130-1145 **Investigation of the Role of Growth in Roughness-Induces Transition**
Briefed by: E., Reshotko, Case Western Reserve University, and Anatoly Tumin, University of Arizona

1145-1200 **Direct Numerical Simulation Studies of Transitional Hypersonic Reaction Flows Over 3-D Hypersonic Vehicles**
Briefed by: X. Xhong, University of California at Los Angeles

1200-1330 **Lunch**

1330-1345 **Large-Eddy Simulation of Turbulent Hypersonic Flows**
Briefed by: G. Candler, University of Minnesota

1345-1400 **Particle-Imaging Velocimetry of Transverse Injection in Supersonic Flow**
Briefed by: H. Hornung, California Institute of Technology

1400-1415 **Investigation of Combined Low-Angled Jets and Variable Wall Geometry for Hypersonic Aerodynamic Control**
Briefed by: Dr. Rodney Bowersox, Associate Professor, University of Alabama, 205-348-1905

1415-1445 **Break**

1445-1500 **Experimental Studies of Jet and Shock Interaction Phenomena Associated with the Ramjet and Scramjet Propulsion in Hypervelocity Flows**
Briefed by: M. Holden, Calspan University of Buffalo Research Center

1500-1530 **Continuum and Particle Computations of Hypersonic Shock Interaction Flows**
Briefed by: G. Chandler, University of Minnesota, and I. Boyd, University of Michigan

1530-1545 **Large Eddy Simulation of 3-D High Speed Aerodynamic Flows**
Briefed by: D. Knight, Rutgers University

1545-1600 **High Fidelity Simulation of Forebody Fuel Injection in Hypersonic Propulsion by the Space-Time Conservation Element and Solution Element Method**
Briefed by: J. Wu, Wayne State University

1600-1630 **Break**

Unsteady Aerodynamics-Vortex Flows

1630-1645 **Shock-Boundary Layer Interaction Over a Wing**
Briefed by: G. Addington, AFRL/VA, 937-255-8490

1645-1700 **Aerodynamic Studies of Micro Air Vehicles**
Briefed by: H. Reed and W. Saric, Arizona State University

1700-1715 **Origin and Control of Unsteady Loading of Aerodynamic Surfaces Due to Vertex Buffeting**
Briefed by: D. Rockwell, Lehigh University

1715-1730 **Delta Wing Research**
Briefed by: T. McLaughlin and J. Morrow, US Air Force Academy

1730-1745 **A LaserVorticity Probe of the Characterization and Control of Turbulent Boundary Layers**
Briefed by: V. Otugen, Polytechnic University

1745 **Adjourn**

Thursday 6 September 2001

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0800-0900 **Registration and Continental Breakfast**
Main Lobby

High Speed Flow Control Using Weakly-Ionized Flows

0900-0915 **Computational Hypersonics**
Briefed by: Dr. Datta Gaitonde, Senior Research Engineer, AFRL/VA, 937-656-7867 and Dr.Eswar Josyula, Senior Research Engineer, AFRL/VA, 937-904-4044

0915-0930 **An Integrated Computational Tool for Hypersonic Flow Simulation**
Briefed by: K. Hoffmann, Wichita State University

0930-0945 **Magneto-Aerodynamic Hypersonics**
Briefed by: Dr. Joseph Shang, AFRL/VA, 937-255-6157, Dr. Biswa Ganguly, AFRL/PR, 937-785-2923, Dr. Robert Peterkin, AFRL/DE, 505-846-0259

0945-1000 **Studies of Anomalous Shock Wave Propagation and Dispersion in Weakly Ionized Plasmas**
Briefed by: J. W. Rich, W.R. Lempert, and V.V Subramaniam, Ohio State University

1000-1015 **Microwave-Driven Air Plasma Studies for Drag Reduction and Power Extraction in Supersonic Air**
Briefed by: R. Miles and S. Macheret, Princeton University

1015-1045 **Break**

Unsteady Aerodynamics-Jet Flows

1045-1100 **Aeroacoustic Optimization and Control**
Briefed by: J. Freund UCLA and T. Bewley, University of California at San Diego

1100-1115 **Jet Mixing and Noise in High Speed Axisymmetric Jets**
Briefed by: M. Sammy, Ohio State University, S. Narayanan, United Technologies Research Center

1115-1130 **Hybrid Control of Jet Flows**
Briefed by: J. Naughton and d. Smith, University of Wyoming

1130-1145 **Investigation of the Dynamics of the Jet Mixing Layer**
Briefed by: W. George and S. Woodward, State University of New York at Buffalo

1145-1300 **Lunch**

Unsteady Aerodynamics-Resonant Cavities

1300-1315 **Closed-Loop Control of Acoustic Tones in Aircraft Cavities**
Briefed by: D. Williams, Illinois Institute of Technology, and J. Morrow, US Air Force Academy

1315-1330 **On Controlling the Flow Over Cavities**
Briefed by: I. Wygnanski, A. Tumin , E. Kerschen, University of Arizona, and J. Morrow, USAFA

1330-1345 **Active Control of Complex Weapons Bay Oscillations**
Briefed by: N. Sinha, CRAFT, Inc., J. Seiner, University of Mississippi, and J. Morrow, USAFA

1345-1400 **Shear Layer Dynamics in Resonating Cavity Flows**
Briefed by: L., Ukeiley, University of Mississippi

1400-1430 **Break**

Active Flow Control- Small Actuator Physics

1430-1445 **The Effectiveness of Actuators Used in Active Flow Control: Numerical Simulations, Analysis, and Experiments**
Briefed by: H. Fasel and I Wygnanski, University of Arizona, and M. Gaster, Queen Mary College

1445-1500 **Active Flow Control of Supersonic Impinging Jets**
Briefed by: A. Krothapalli, and F. Alvi, Florida State University, and W. Bower, The Boeing Company

1500-1515 **Adaptive Real-Time Separation-Control Systems**
Briefed by: L. Cattafesta and B, Carroll, University of Florida

1515-1530 **High Frequency Vortex Generators for Active Flow Control Using Complaint Systems**
Briefed by: R. Osborn and S. Kota, Mechanical Compliance, Inc., and M. Lee and J. Joo, University of Michigan

1530-1545 **Effective Actuation: High Bandwidth Actuators and Actuator Scaling Laws**
Briefed by: A. Cain, Innovative Technology Applications, and G. Raman Illinois Institute of Technology

1545 **Adjourn**

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